# NEW SPECIES AND COMBINATIONS IN THE GENUS SCAPHYGLOTTIS (ORCHIDACEAE) 

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A revisionary study of the neotropical orchid genus Scaphyglottis Poepp. \& Endl. has revealed the existence of a number of undescribed species, six of which are herein described as new. Four new combinations are also proposed, two involving transfers from Hexisea. This paper is preparatory to an account of the genus as a whole, in which the new species will be illustrated and nomenclatural changes more fully discussed.

SCAPHYGLOTTIS CHLORANTHA B. R. Adams sp. nov. S. densae (Schltr.) B. R. Adams affinis, sed floribus majoribus, labello oblongo vel ovatooblongo, columna multo longiore (6-6.5 mm longa), nectario profundiore differt. Typus: Panama, Sytsma 2003 (holotypus MO).

An erect to spreading epiphytic herb, $18-45 \mathrm{~cm}$ tall. Sters superimposed, slender, 1.5-3 mm in diam., longitudinally angulatesulcate, jointed and sometimes somewhat stipitate at base, apically bifoliate, $1 / 3$ to entirely covered by imbricate sheaths when young; primary stems caespitose, 4-20 cm long; secondary stems produced 1-3 together from the apex of the stem below, often developing aerial roots at the base, $0.5-15 \mathrm{~cm}$ long; sheaths scarious, keeled, with narrowly triangular free apices. Leaves erect-spreading, narrowly lanceolate to narrowly elliptic, subcoriaceous, unequally bilobulate at the apex, $1.7-5.5 \mathrm{~cm}$ long, 4-7.5 mm wide. Inflorescences terminal, initially l-flowered, subtended by 2 conduplicate bracts up to 2 cm long which conceal the short peduncle, subsequently often developing from basal buds 1 or 2 additional flowers (l-flowered branches), each subtended by several further bracts. Flowers with a rather inconspicuous obtuse mentum, pale green; pedicel and ovary long-exserted from subtending bracts, 2.2-3.5 cm long. Sepals 9-9.5 mm long; dorsal sepal oblong-elliptic, concave, apiculate or acuminate, $2.7-3.2 \mathrm{~mm}$ wide; lateral sepals united for about 1 mm at base, somewhat obliquely elliptic-lanceolate or oblong-elliptic, acute or apiculate, 2.5-3.7 mm wide. Petals ligulate-lanceolate, somewhat constricted above the middle, acute, about 9 mm long, 1.6 2.5 mm wide. Lip united to the column-foot, shortly clawed, oblong to ovate-oblong, keeled, $\pm$ emarginate, apiculate, somewhat decurved above the claw and bearing at the point of curvature a pair of

[^0]sublamellate calli, 7-8 mm long, 3.5-5.5 mm wide. Column
prominently winged in the upper two-thirds, 6-6.5 mm long, 4-4.5 mm
wide across the wings when spread; foot projecting forward, 1.5-2 mm
long; wings semi-circular, at base continuous with tissue extending between column and column-foot to form a nectary $1.5-2$ mm deep; clinandrium with an obtuse mid-tooth curved over the anther, somewhat exceeded by the wings so column apex appears $\pm$ tridentate; pollinia 4, equal in size, ellipsoid, compressed, prominently caudiculate; stigmatic cavity subquadrate; rostellum a transverse plate with a median notch, apparently developing a viscidium. capsule not seen.

PANAMA. Panamá: Cerro Jefe, 29 Oct. 1980, Sytsma 2003 (holotype MO); Cerro Jefe, flowered in cultivation 25 Oct. 1976, Taylor 100 (in spirit, K); newly bulldozed trail off Cerro Jefe road, 0.4 km beyond turnoff to Altos de Pacora, 29 Sept. 1975, J. T. $\& \frac{F}{}$. Witherspoon 8571 (MO). Veraguas: vicinity of Escuela Agricultura, Alto Piedra near Santa Fé, toward Atlantic slope along trail to top of Cerro Tute, 26 Jan. 1980, Antonio 3474 (MO).
S. chlorantha is vegetatively very like and evidently closely allied to S. densa (Schltr.) B. R. Adams. It has, however, a more southerly distribution and is well distinguished by its flowers which are larger, have an oblong or ovate-oblong rather than pandurate lip, a column about three-quarters rather than less than half as long as the lip and a substantially deeper nectary.

SCAPHYGLOTTIS LIMONENSIS B. R. Adams sp. nov. S. minutiflorae Ames \& Correll arcte affinis, sed habitu graciliore, bracteis inflorescentiae brevioribus et vix in fibras solutis, mento parviore, labello ovato-spatulato differt. Typus: Costa Rica, Standley \& Valerio 48920 (holotypus AMES; isotypus US).

An erect-spreading epiphytic herb, $15-40 \mathrm{~cm}$ tall. Stems superimposed, slender, cylindrical, l-3 mm in diam., longitudinally plurisulcate when dry, jointed at base, apically bi- or trifoliate, about $1 / 2$ covered by imbricate sheaths when young; primary stems caespitose, $8-19 \mathrm{~cm}$ long; secondary stems produced l-5 together from the apex of the stem below, commonly developing aerial roots at the base, 2.5-10 cm long; sheaths scarious, the upper l-2 at first bearing leaflets up to 2 cm long, the remainder with triangular free apices. Leaves erect-spreading, linear to lanceolate-linear, chartaceous, unequally bilobulate at the very narrow apex, $5-10 \mathrm{~cm}$ long, 2.5-5 mm wide. Inflorescences terminal, initially l-flowered, subtended by about 6 conduplicate bracts up to 4.5 mm long which conceal the short peduncle, over the following up to 3 seasons developing from basal buds rather numerous additional flowers (1flowered branches), up to 3 appearing at a time and each subtended by about 4 further bracts. Flowers with a $\pm$ inconspicuous obtuse mentum, white; pedicel and ovary partly exserted from subtending bracts, 2.8-3.5 mm long. Sepals concave, acute; dorsal sepal
oblong, keeled, 2.5-2.8 nm long, 0.8-1 mm wide; lateral sepals essentially free, somewhat obliquely oblong, 2.6-2.9 mm long, l.11.2 mm wide. Petals somewhat obliquely ligulate, subacute, 2.2-2.5 mm long, about 0.4 mm wide. Lip subarticulate with the column-foot, ovate-spatulate, concave, obtuse to somewhat trilobulate at the apex, somewhat fleshy-thickened in the basal third, ecallose, 2.32.7 mm long, about 1.4 mm wide. Column clavate, lacking wings, somewhat concave at base, with a dorsal ridge, $1.8-2 \mathrm{~mm}$ long, about 1 mon wide below the apex; foot almost obsolete, about 0.1 mm long; clinandrium with a short obtuse mid-tooth curved over the anther, dorsal margin repand and somewhat exceeding lateral margins; pollinia 4, subequal in size, ellipsoid to sonewhat D-shaped, compressed, prominently caudiculate; stigmatic cavity transversely lunate: rostellum a transverse plate. Capsule ellipsoid, with persistent perianth, $3.5-4 \mathrm{~mm}$ long, $\pm$ exserted from subtending bracts; pedicel 0.5-0.7 mm long.

COSTA RICA. Limón: La Lola, 10 Jan. 1957, Carlson 3295 ( $F$ ); Hamburg Finca, on the Rio Reventazón below Cairo, 19 Feb. 1926, Standley \& Valerio 48771 (AMES, US), 48919 (AMES) \& 48920 (holotype AMES; isotype US).

So far only known from the lowlands of eastern Costa Rica, S. limonensis is undoubtedly closely allied to S. minutiflora Ames $\&$ Correll but obviously differs in its more slender stems and shorter and narrower leaves. In addition, the bracts of the inflorescences are fewer and shorter and do not break down to form the conspicuous fibrous tufts that are so characteristic of S. minutiflora. Perhaps most notably, the flower has a less well-developed mentum and an ovate-spatulate rather than distinctly 3 -lobed lip.

SCAPHYGLOITIS PANAMENSIS B. R. Adams sp. nov. S. bilineatae (Reichb. f.) Schltr. arcte affinis, sed caulibus gracilioribus et flexilioribus, foliis oblongo-lanceolatis ad anguste ovatis, lobis lateralibus labelli minoribus differt. Typus: Panama, Churchill 3942 (holotypus MO).

An erect-spreading to straggly epiphytic herb, $5-30 \mathrm{~cm}$ tall or up to 35 cm long. Stems superimposed, slender and flexible, cylindrical and often slightly pseudobulbous above, 1-3 mm in diam., longitudinally plurisulcate when dry, below the middle or at base $\pm$ contracted into a jointed stipe, apically bifoliate, $1 / 2$ to almost entirely covered by imbricate sheaths when young; primary stems caespitose, 2-24 cmi long; secondary stems produced 1-5 together from the apex of the stem below, often developing aerial roots at the base, l-9 cm long; sheaths scarious, the upper l-3 at first bearing leaflets up to 1 cm long, the remainder with broadly triangular free apices. Leaves erect-spreading to spreading, oblong-lanceolate to lanceolate or narrowly ovate, apparently coriaceous, unequally bilobulate at the apex with the lobules often overlapping or the apex somewhat twisted, 1.2-5 cm long, 3-12 mm wide. Inflorescences
terminal, initially l-flowered, subtended by about 3 conduplicate bracts up to $l \mathrm{~cm}$ long which conceal the short peduncle, over the following l-2 seasons commonly developing from basal buds several additional flowers ( 1 -flowered branches), l or 2 appearing at a time and each subtended by about 3 further bracts. Flowers with a conspicuous rounded mentum; sepals and petals greenish or yellowish, sometimes tinged with purple; lip white; column purple or maroon; pedicel and ovary concealed by subtending bracts, 3-7 mm long. Sepals concave, acute or obtuse; dorsal sepal narrowly oblong-oblanceolate or oblong-elliptic, keeled, 6-8 mm long, 1.8-2 mm wide; lateral sepals united for $0.7-1 \mathrm{~mm}$ at base, narrowly and obliquely oblong, $8-10.5 \mathrm{~mm}$ long, $2-2.5 \mathrm{~mm}$ wide. Petals ligulate, obtuse, $6-8 \mathrm{~mm}$ long, $0.8-1 \mathrm{~mm}$ wide. Lip $\pm$ united to the columnfoot, somewhat arcuate, prominently clawe $\bar{d}$, obscurely to distinctly 3-lobed above the middle, $8-10.5 \mathrm{~mm}$ long, $3.5-4.3 \mathrm{~mm}$ wide; claw strongly concave at base, somewhat fleshy-thickened, with the thickening extending forward between the lateral lobes as a broad and indistinct callus with raised margins; lateral lobes broadly rounded; mid-lobe transversely cblong to transversely elliptic, retuse. Column somewhat clavate, $\pm$ winged below the apex, $5-6 \mathrm{~mm}$ long, $2-2.5 \mathrm{~mm}$ wide across the wings when spread; foot projecting downward, concave-winged, 0.7-1mm long, forming with the concave base of the lip a nectary $0.7-1 \mathrm{~mm}$ deep; wings broadly rounded; clinandrium with an obtuse mid-tooth curved over the anther, dorsal margin considerably exceeding lateral margins; pollinia 4, subequal in size, $\pm$ D-shaped, strongly compressed, prominently caudiculate; stigmatic cavity obovate; rostellum tongue-like, decurved. Capsule ellipsoid, $8-9 \mathrm{~mm}$ long including a beak about 1.5 mm long, subsessile, only partly exserted from subtending bracts.

PANAMA. Bocas del Toro: oleoducto road, Fortuna Dam area, 5 Feb. 1984, Churchill et al 4561 (MO). Cocle: El Potroso, Alto Calvario, 1 Feb. 1977, Folsom $\frac{\&}{6}$ Collins 1556 (MO); 7 km N of El Copé, near Rivera Sawmill at Alto Calvario, Forgotten Hill, 2 July 1977, Folsom 4103 (MO); around Rivera Sawmill, 7 km N of El Copé, 2 Oct. 1977, Folsom et al 5722 (MO); Caribbean side of divide at El Copé, 3 Feb .1983 , Hamilton $\underline{\text { D }}$ Davidse 2627 (MO) ; near sawmill 8 km N of El Copé, l Sept 1977 , Maas et al 2768 (MO, U); above El Potroso Sawmill at continental divide, 24 Oct. 1980, Sytsma 1833 (MO) \& 25 Oct. 1980, Sytsma 1854 (MO). Panamá: vicinity of Cerro Jefe, near tower, 23 May 1980, Antonio 413 (MO); surmit of Cerro Jefe near radio towers, $30 \mathrm{Nov}. \mathrm{1983}$,Churchill 3942 (holotype MO); between Cerro Jefe and Eneida, 17 Jan. 1968, Dwyer et al 8203 (MO); road from Pan-Am. Highway to Cerro Jefe, sumnit, 22 June 1977, Folsom 3828 (MO): near top of Cerro Jefe to 1 mi beyond, 1 Jan. 1972, Gentry et al 3529A (MO); region of Cerro Jefe, Altos de Pacora, 22 Feb. 1976, Kennedy \& Dressler 3513 (F); Cerro Jefe, 2 March 1976, Luer et al 701 (SEL); Cerro Jefe, along trail on ridge running NE from summit, 18 Dec. 1974, Mori et al 3757 (MO) \& 11 May 1975, Mori \& Kallunki 6071 (MO); Cerro Jefe, 14 July 1975, Mori 7118 (MO); Cerro Jefe, 2 March 1976, Taylor 13208 ( $K$ ); newly bulldozed trail off Cerro Jefe road, 0.4 km beyond turnoff to Altos de Pacora, 29

Sept. 1975, J. T. \& F. Witherspoon 8573 (MO). Veraguas: near the divide above Santa Fé, 5 Sept. 1976, Luer \& Dressler 1129 (SEL): Cerro Tute, E slopes 1 km beyond Escuela Agricola Alto Piedra above Santa Fé, 14 May 1981, Sytsma \& Andersson 4661 (MO).

Although closely allied to S. bilineata (Reichb. f.) Schltr., this species is instantly distinguishable by its slender flexible stems and more or less lanceolate leaves. Florally the two species are very similar, although the lip of S. bilineata has rather better developed lateral lobes. Whilst apparently endemic to Panama, S. panamensis is of fairly wide occurrence in that country.

SCAPHYGLOITIS ROBUSTA B. R. Adams sp. nov. S. modestae (Reichb. f.) Schltr. affinis, sed habitu generaliter robustiore, floribus majoribus, labello simplici, alis columnae subquadratis differt. Typus: Panama, Luteyn $\S$ Wilbur 4679 (holotypus DUKE).

An erect to rather straggly epiphytic herb, $16-50 \mathrm{~cm}$ tall. Stems superimposed, cylindrical to narrowly fusiform, pseudobulbous, 2-6 mm in diam., longitudinally plurisulcate when dry, contracted at base into a jointed stipe, apically bifoliate, $1 / 3$ to almost entirely covered by imbricate sheaths when young; primary stems caespitose, $4.5-23 \mathrm{~cm}$ long; secondary stems produced l-2 together from the apex of the stem below, often developing aerial roots at the base, $2.5-14 \mathrm{~cm}$ long; sheaths scarious, the upper $1-3$ often at first bearing recurved leaflets up to 13 mm long, the remainder with broadly triangular to subtruncate free apices. Leaves erectspreading, narrowly oblong to oblong-elliptic or elliptic, subcoriaceous, unequally bilobed at the apex with the lobes commonly overlapping or the apex somewhat twisted, $4-18.5 \mathrm{~cm}$ long, $1.3-3.4 \mathrm{~cm}$ wide. Inflorescences terminal, initially l- or more commonly 2 flowered, subtended by about 5 conduplicate bracts up to 1.8 cm long which conceal the short peduncle, over the following up to 3 seasons developing from basal buds several to numerous additional flowers (l-flowered branches), up to 6 appearing at a time and each subtended by 4 further bracts. Flowers with a $\pm$ conspicuous rounded mentum, varying in colour from greenish-white to pale brownish, often suffused or veined with purple or pink; pedicel and ovary $\pm$ concealed by subtending bracts, 8-9 mum long. Sepals subacute or obtuse; dorsal sepal oblong to oblong-elliptic,concave, $7-9.5 \mathrm{~mm}$ long, 3-4 mm wide; lateral sepals united for 1.2-1.5 mm at base, obliquely oblong-elliptic to ovate-elliptic, $7-10 \mathrm{~mm}$ long, $3.5-5 \mathrm{~mm}$ wide. Petals somewhat obliquely oblong-elliptic, $\pm$ constricted above the middle, obtuse, somewhat fleshy-thickened at base, 6.5-8.5 nun long, 2-3.2 mm wide. Lip articulate with the column-foot, somewhat arcuate, lanceolate-oblong from a cuneate base, retuse, with erose-crenulate margins above the middle, prominently callose in the basal half, $8-9.5 \mathrm{~mm}$ long, $3.8-4.5 \mathrm{~mm}$ wide; callus oblong, with $\pm$ verrucose margins, terminating in a pair of $\pm$ distinct fleshy humps. Column arcuate, prominently winged above the middle, $5.5-6 \mathrm{~mm}$ long, 4-4.3 mon wide across the wings when spread; foot projecting
downward, deeply concave, 1.2-1.5 mm long; wings subquadrate; clinandrium with irregularly dentate margins, dorsal margin greatly exceeding lateral margins, tapering to a truncate apex and curved over the anther; pollinia 4, subequal in size, $\pm$ D-shaped, strongly compressed, prominently caudiculate; stigmatic cavity obovate; rostellum shortly tongue-like, decurved. Capsule ellipsoid, 9-12 mm long including a beak about 2 mm long, subsessile, only the upper part exserted from subtending bracts.

PANAMA. Panamá: top of Cerro Jefe, 1 April 1972, Gentry 4869 (MO); Campo Tres, 3 mi NE of Altos de Pacora, 10 March 1973, Liesner 532 (MO); road from El Llano to Carti-Tupile, 12 mi above Pan-Am. Highway, 13 March 1973, Liesner 644 (MO) \& 26-27 March 1973, Liesner 1156 (MO); Cerro Jefe, 13 Feb. 1977, C. \& J. Luer 1708 (SEL); El Llano-Carti-Tupile road, $10-12 \mathrm{~km} \mathrm{~N}$ of Inter-Am. Highway, 9 Jan . 1975, Luteyn $\frac{\alpha}{}$ Wilbur 4679 (holotype DUKE); El Llano-Carti road at El Llañ, 16 Jan. 1974, Nee \& Dressler 9360 (MO); El Llano-Carti road, 12 km from Pan-Am. Highway, 22 Oct. 1980, Sytsma 1744 (MO); Cerro Jefe 6 mi past Cerro Azul on road to Altos de Pacora, 19 Feb. 1981, Sytsma \& D'ArCy 3693 (MO); Cerro Jefe, flowered in cultivation 6 Feb . 1980 , Taylor 81 (in spirit, K); between El Llano and Carti, about 12-15 km N of El Llano, 3 March 1976, Taylor 13217 (K). San Blas: Nusagandi, El Llano-Carti road, 28 July 1984, de Nevers \& Todzia 3538 (MO); Cerro Habú, trail from Rio Sidro, $\overline{18} \overline{\text { Dec. } 1980, ~}$ Sytsma et al 2667 (MO); El Llano-Carti road, 14-15 mi from Pan-Am. Highway, 10 May 1981, Sytsma \& Andersson 4467 (MO). Veraguas: Mts. 3.9-5 mi N of Santa Fe, 12 Dec .1971 , Gentry 2966 (MO).
S. robusta is clearly allied to S. modesta (Reichb. f.) Schltr. but mature plants tend to be substantially larger and more robust. They also have larger flowers with a simple lip and prominent subquadrate wings on the column. The smaller flowers of $S$. modesta have, in contrast, a distinctly 3-lobed lip and less well-developed, rounded column-wings. S. modesta has a wide distribution in northern South America and the West Indies but is not known to extend to Panama where all collections of S. robusta have so far been made.

SCAPHYGLOTTIS SESSILIFLORA B. R. Adams sp. nov. S. pulchellae (Schltr.) L. O. Williams arcte affinis, sed partibus apicalibus caulium non psedobulbosis, ramis inflorescentiae subsessilibus et semper unifloris, sepalis et petalis longioribus et valde acuminatis differt. Typus: Costa Rica, Standley 33080 (holotypus US; isotypus AMES).

An erect to straggly or pendent epiphytic herb, $40-90 \mathrm{~cm}$ tall or up to 120 cm long. Stems superimposed, cylindrical, jointed, 14.5 mm in diam., at least the uppermost internode (normally the longest) longitudinally plurisulcate-wrinkled when dry, commonly somewhat narrowed in the lower $1 / 2-2 / 3$ but not obviously stipitate, apically bifoliate, entirely covered by imbricate sheaths when
young; primary stems caespitose, $17-58 \mathrm{~cm}$ long; secondary stems produced $1-6(-12)$ together from the apex of the stem below, often developing aerial roots at the base, $2-17 \mathrm{~cm}$ long; sheaths scarious, the upper l-2 at first commonly bearing leaflets up to 1.8 cm long, the remainder with triangular free apices. Leaves erect to erectspreading, linear-lanceolate to linear, chartaceous, unequally bilobulate at the very narrow apex, 8-2l cm long, 4-13 mm wide. Inflorescences terminal, initially l-flowered, subtended by 2 conduplicate bracts up to 2.5 cm long which conceal the $3-5 \mathrm{~mm}$ long peduncle, over the following 2 seasons frequently developing from basal buds l-few additional flowers (l-flowered branches), 1 or 2 appearing at a time and each subtended by several further bracts. Flowers with an inconspicuous obtuse mentum, whitish, pale green or yellowish, often tinged with dark red; pedicel and ovary longexserted from subtending bracts, $2-5 \mathrm{~cm}$ long. Sepals $17.5-20 \mathrm{~mm}$ long, 4-4.5 mm wide; dorsal sepal narrowly lanceolate, concave, long-acuminate; lateral sepals united for about 1 mm at base, narrowly and obliquely lanceolate, acuminate. Petals lanceolate, acuminate, $16.5-19 \mathrm{~mm}$ long, $5.5-6.5 \mathrm{~mm}$ wide. Lip articulate with the colum-foot, $\pm$ sessile, oblong-obovate, keeled, obtuse, apiculate, rounded-subcordate at base, slightly decurved above the base, provided in the lower third with a pair of parallel callose ridges which form the margins of a central channel, $1.4-1.6 \mathrm{~cm}$ long, $8-8.5 \mathrm{~mm}$ wide. Column arcuate, lacking wings, $7-7.5 \mathrm{~mm}$ long, about 1.7 mm wide below the apex; foot projecting downward, deeply concave, about 1.5 mm long; clinandrium with an acute mid-tooth curved over the anther, lateral margins broadly rounded; pollinia 6; stigmatic cavity obovate-elliptic, the margins raised and on the lower side forming a small rounded tooth; rostellum tongue-like, decurved. Capsule ellipsoid, 2.3-3cm long, exserted from subtending bracts; pedicel $1.3-1.6 \mathrm{~cm}$ long.

COSTA RICA. Alajuela: La Palma de San Ramon, 26 July 1924, Brenes 929 (NY) \& 26 Aug. 1924, Brenes 1024 (NY) \& 27 Aug. 1925, Brenes (230)1418 (F). Cartago: Cerro de La Carpintera, Feb 1924, Standley 34475 (AMES, US), 35557 (AMES, US), 35580 (AMES, US) \& 35604 (AMES, US). Guancaste: Parque Nacional Rincon de la Vieja, SE slopes of Volcan Santa Maria, above Estacion Hacienda Santa Maria, 27-28 Jan. 1983, Davidse et al 23408 (MO). Heredia: Yerba Buena, NE of San Isidro, $22,28 \mathrm{Feb} .19 \overline{26}$, Standley \& Valerio 49103 (AMES, US), 49138 (AMES), 50203 (AMES, US) \& 50238 (AMES, US); Cerro de Las Lajas, $N$ of San Isidro, 7 March 1926, Standley \& Valerio 51480 (AMES, US). San José: La Palma, 3 Feb 1924, Standley 33080 (holotype US; isotype AMES) \& 17 March 1924, Standlev 38259 (AMES, US): Zurqui, 13 Feb. 1926, Standley \& Valerio 48067 (AMES, US) \& 48094 (AMES, US).

Although rather numerous collections of this species have lain in herbaria for over 50 years, its distinctness has remained unrecognised due to confusion with S. pulchella (Schltr.) L. O. Williams. It is readily separated by its longer and markedly acuminate sepals and petals and by the very short inflorescence
branches which are concealed by subtending bracts and always lflowered. In S. pulchella the inflorescence branches are much longer, exserted from subtending bracts and not infrequently $2-$ flowered. When not flowering, the two species are usually distinguishable by the upper $1-2$ internodes of the stems which tend to be more or less pseudobulbous in S. pulchella but not in $\underline{S}$. sessiliflora.

Somewhat more widely distributed in Costa Rica than S. pulchella but, unlike that species, not apparently extending to Panama.

SCAPHYGLOTTIS TRILOBA B. R. Adans sp. nov. a congeneris labelli lobis lateralibus magnis triangularibus et tertio basali unguis subtus plicato manifeste distinguenda. Typus: Colombia, Dodson $\underline{\varepsilon}$ Hills 3128 (holotypus SEL).

An erect-spreading to straggly probably epiphytic herb, up to 1 m long. Stems superimposed, flexible, cylindrical, $1.5-3.5 \mathrm{~mm}$ in diam., slightly compressed above, longitudinally plurisulcate when dry, somewhat narrowed and jointed below the middle but not obviously stipitate, apically bifoliate, $1 / 2-3 / 4$ covered by imbricate sheaths when young; primary stems $20-40 \mathrm{~cm}$ long; secondary stems produced l-4 together from the apex of the stem below, often developing aerial roots at the base, $5-22 \mathrm{~cm}$ long; sheaths becoming scarious, the upper $1-3$ at first bearing leaflets up to 2 cm long, the remainder with triangular free apices. Leaves erect-spreading, linear-lanceolate to linear, subcoriaceous, unequally bilobulate at the apex, $7-14 \mathrm{~cm}$ long, $5-11.5 \mathrm{~mm}$ wide. Inflorescences terminal, initially l-flowered, subtended by 4 conduplicate bracts up to 2 cm long which conceal the $7-10 \mathrm{~mm}$ long peduncle, over the following season sometimes developing from a basal bud a second flower (lflowered branch) subtended by several further bracts. Flowers with an inconspicuous obtuse mentum, often nutant; sepals and petals greenish or yellowish; lip white, of ten marked with purple in the centre; pedicel and ovary long exserted from subtending bracts,1.51.8 cm long. Sepals 11-11.5 mm long, acute; dorsal sepal narrrowly oblong, 2.7-3.2 mm wide; lateral sepals united for about lmm at base, obliquely oblong, adjacent margins somewhat dilated in the lower third, 3.3-3.5 min wide. Petals somewhat obliquely ligulate, rounded at the apex, $10.5-11 \mathrm{~mm}$ long, $1.5-1.7 \mathrm{~mm}$ wide. Lip subarticulate with the column-foot, with a well-developed claw, prominently 3-lobed above the middle, $11-11.5 \mathrm{~mm}$ long, $6-7 \mathrm{~mm}$ wide; claw fleshy-thickened, markedly geniculate with the basal third folaed under the rest of the lip, bearing a pair of parallel keellike calli running from near the base to between the lateral lobes; lateral lobes triangular, somewhat antrorse; mid-lobe strongly decurved, subquadrate, retuse, with crenulate margins. Column rather slender, winged below the apex, 9-9.5 mm long, $3 . \overline{2-3.5} \mathrm{~mm}$ wide across the wings when spread; foot projecting forward, strongly concave, $3-3.5 \mathrm{~mm}$ long; wings small, rounded-triangular; clinandrium with an acute mid-tooth curved over the anther, dorsal margin
somewhat exceeding lateral margins; pollinia 4, subequal in size, Dshaped, strongly compressed, prominently caudiculate; stigmatic cavity broadly obovate; rostellum tongue-like, decurved. Capsule not seen.

COLOMBIA. El Valle: km 54 Cali-Buenaventura (old road), 20 June 1965, Dodson $\underline{\alpha}$ Hills 3128 (holotype SEL); km 46 CaliBuenaventura, 1 July 1965, Dodson $\&$ Hills 3203 (SEL). Without locality, cultivated at La Ceja by the Robledos, 22 Jan. 1978, Luer 2802 (SEL) \& 24 Oct. 1979, Luer 4323 (SEL).

A very distinctive species perhaps most closely related to $S$. bilineata (Reichb. f.) Schltr. and S. panamensis. The form of the lip, with its large triangular lateral lobes and basal third of the claw folded beneath the remainder, is unique in the genus. So far S. triloba is known from the wild by only two collections, both from the same area of south-central Colombia. It has also been found in cultivation at La Ceja which is in Dept. Antioquia, some 300 km to the north. The fact that such a large plant with fairly conspicuous flowers is not represented by more collections suggests that it is either very rare or extremely local in occurrence.

SCAPHYGLOTTIS ARCTATA (Dressler) B. R. Adams comb. nov.
Hexisea arctata Dressler in Orquidea 7(3): 223, 1979. Type: Panama, Veraguas, ridge E of Cerro Tute, about 7 km NW of Santa Fé, 12 Oct. 1975, Dressler 5185 (holotype US; isotype MO).

This and the following new combination are made since I am unable to support the continued placement of these two species in Hexisea. It seems clear that their closest allies are to be found among the group of species around Scaphyglottis jimenezii Schltr., particularly S. corallorrhiza (Ames) Ames, Hubbard \& C.Schweinf. and the herein described S. chlorantha.

SCAPHYGLOITIS SIGMOIDEA (Ames \& C. Schweinf.) B. R. Adams comb. nov.
Hexisea sigmoidea Ames \& C. Schweinf. in Sched. Orch. 8: 39, 1925.
Type: Costa Rica, Santa Clara de Cartago, 23 Dec. 1923,
Lankester 570 (holotype AMES).

SCAPHYGLOTTIS BOLIVIENSIS (Rolfe) B. R. Adams comb. nov.
Hexadesmia boliviensis Rolfe in Mem. Torrey Bot. Club 6(1): 122, 1896. Type: Bolivia, between Guanai and Tipuani, April-June 1892, Bang 1329 (holotype K; isotypes BM, G, MICH, MO, NY, US). Scaphyglottis huebneri Schltr. in Beih. Bot. Centralbl. 42(2): 95, 1925. Type: Brazil, Amazonas, Iguapo Caicara, Habner 126 (holotype B, destroyed).

Ornithidiun flaccidum Kraenzl. in Repert. Spec. Nov. Regni. Veg. 25: 31, 1928. Type: Bolivia, Región de Mapiri, San Carlos, bei Sarampiuni, 7 April 1927, Buchtien 526 (holotype B, destroyed: isotype US).
Scaphyglottis matogrossensis Brade in Arq. Serv. Florest. 1(1): 44,
1939. Type: Brazil, Mato Grosso, flowered in cultivation 6 July 1939, Rio de Janeiro Bot. Gard. 14462 (holotype RB; isotype RB).
S. decipiens C. Schweinf. in Bot. Mus. Leafl. $17(2): 43$, t. 17, 1955. Type: Costa Rica, Puntarenas, between Golfo Dulce and Rio Térraba, Dec. 1947, Skutch 5314 (holotype US; isotypes AMES, MICH, SEL).
S. flaccida (Kraenzl.) Garay in Canad. J. Bot. 34(2): 255, 1956.

Although the flowers are old and pollinia are lacking, study of the rather abundant type material has convinced me that Hexadesmia boliviensis is the earliest legitimate name for one of the more widespread and variable of the Scaphyglottis species. A new combination is required since this epithet does not appear to have been previously transferred to Scaphyglottis.

SCAPHYGLOTTIS DENSA (Schltr.) B. R. Adams comb. nov.
Pachystele densa Schltr. in Repert. Spec. Nov. Regni. Veg. Beih. 19: 29, 1923. Type: Costa Rica, La Palma, Sept. 1921, Wercklé 71 (holotype B, destroyed).

Of the five species at one time included in Pachystele Schltr., one was originally described in Scaphyglottis and the remainder, with the exception of P. densa have since been transferred to that genus. Doubts as to the distinctness of P. densa from S. jimenezii Schltr. probably explain the reluctance of previous authors to treat it similarly but it is in fact well separated by a number of vegetative features, particularly the nature of the stem-sheaths which are smooth with acute apices rather than verrucose and truncate.

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